

## TORNADO AT CINCINNATI OHIO, JANUARY 19, 1928

By W. B. SCHLOMER

A tornado of very limited extent, and the second authentic storm of such character to visit Cincinnati since official records began, caused considerable damage over a small area in the Mill Creek Valley section of Cumminsville, in the northwestern portion of Cincinnati. It is probably the first time that a storm of this type occurred in this latitude of the Ohio Valley near mid-winter.

Meteorological conditions at 8 a. m. January 19, 1928, showed a deep storm central over Lake Michigan with a troughlike extension southward over the lower Ohio Valley. Thunderstorms had occurred during the preceding 12 hours over the region from the lower Ohio Valley westward to Missouri. The pressure had been falling steadily during the last 24 hours, with a rather rapid fall between about 2 a. m. and 8:50 a. m. The weather had been quite dark during the morning, artificial light being necessary in offices, stores, etc. At 9 a. m. the darkness became more pronounced, causing comment and inquiry. At 9:07 a. m. there was a sudden and decided diminution in the brilliancy of the electric lights in the office and elsewhere in the city. It is believed that this fixes the time of the tornado and also corresponds with the Union Gas & Electric Co.'s record of trouble on their power lines. It was also at this time that Mr. J. T. Gray, on duty at the Abbe Meteorological Observatory, reports having heard an unusual roar in the west and the sky black and threatening. The path of the tornado was about 1 mile west of the Abbe Observatory.

First evidences of the tornado appear over the region immediately west of Spring Grove Avenue, between Ralston Street and Mill Creek Bridge. The tornado moved in a northeasterly direction. Along Spring Grove Avenue its track was apparently about 500 feet wide. Except for overturned chimneys, all evidence of destruction disappears about 200 feet east of Colerain Avenue, and it is estimated that the path of the tornado was about 1,000 feet long and varied in width from about 500 feet to 200 feet. A number of eyewitnesses claim to have observed the funnel-shaped cloud accompanied by balls of fire. It is believed that this latter was due to short-circuited fallen electric wires. Aside from these eyewitnesses the debris in several places bears evidence of tornadic action, and some buildings show the explosive force of the air as the vortex passed. Fortunately no lives were lost. About 18 people suffered injuries, none serious, and the total property damage is estimated at about \$100,000.

Records made at both the Abbe Meteorological Observatory and the Government Building, 1 and 4 miles, respectively, from the scene of the tornado do not show any close connection with the storm. At the Government Building there was a sudden backing of the wind from east to west at 8:50 a. m. and a simultaneous rise of 0.09 in inch pressure followed by a rather sharp drop of 0.10 inch. At the Abbe Meteorological Observatory brisk southerly winds shifted to southwest at 9 a. m., and at about 9:09 a. m. a moderately heavy rain was coincident with a sudden pressure rise of 0.04 inch.

## TORNADOES AT LOUISVILLE, KY., JANUARY 19, 1928

By J. L. KENDALL

Two small tornadoes descended upon the outskirts of Louisville on the date above mentioned and under atmospheric conditions as described in the above article. The storm was associated with a thunderstorm and the wind-shift line of the cyclone.

The first and most intense of the two had its origin about 1 mile southwest of Shively, Jefferson County, Ky., and moved east-northeast to a point near Anchorage, Ky., a distance of about 18 miles.

The second tornado originated about 12 miles almost

due east of the origin of the first and moved in a path parallel thereto for a distance of but 4 miles, beginning near Fern Creek and ending near Jeffersonton. The damage wrought by these storms is given on page 25.

As in the case of the tornado of March 18, 1925, which traversed a district but a few miles south of this one, the tendency of the tornadic winds was to rise as distance to the east was gained. After passing through the southern part of the city they touched the earth only occasionally.

## A MIDWINTER SHOWER IN NORTH DAKOTA

By WILLIAM J. BERRY

A light shower of rain accompanied by high temperature for the season occurred at Grand Forks, N. Dak., during the night of December 4-5, 1927. The rain began about 11 p. m. It did not freeze on trees and telephone wires but the ground surface soon became glazed over. The temperature, which for several days had been around and below zero, Fahrenheit, stood at 9 below zero at 9 a. m. on the 4th; it rose rapidly thereafter reaching 36° above by the following midnight, a rise at the rate of 3° per hour for a 15-hour period. The wind, which was fairly strong from the south-southeast on the 4th, decreased to a speed of barely 4 miles per hour at midnight of the 5th, shifting to northwest at that hour and increasing to 30 miles per hour at 7:45 a. m. on the 5th.

### DISCUSSION

The conditions above described were due to the rather rapid eastward movement of a well-defined cyclonic system which crossed the meridian of Grand Forks about the time of highest temperature. The center of the system was to the northward of Grand Forks and the barometric gradient was for southerly winds.

Kite observations made at Ellendale, N. Dak., on the dates in question show the following:<sup>1</sup>

"An unusually large rise in the surface temperature accompanying a northwesterly wind at Ellendale on December 4-5 makes the upper air records for those dates

<sup>1</sup> Reported on by L. T. Samuels, of the Aerological Division.

of special interest. On the morning of the 4th this station was between a low pressure area to the north and a high to the southward. The surface temperature ( $-28^{\circ}$  C.) began rising about 9 a. m. of the 4th and continued steadily until 4 a. m. of the 5th when it had reached  $3^{\circ}$  C., an increase of  $31^{\circ}$  C. in 19 hours. During this period the surface wind changed from southwest to south, again to southwest, then to west and finally northwest. It is noticed that a considerable portion of the rise in temperature occurred after the south component had disappeared, the wind having become westerly and northwesterly some 6 hours before the temperature rise ceased.

A kite flight made at noon of the 4th revealed a moderate southerly surface wind veering with increase in altitude to strong northwesterly at and above 2,000 meters. A pronounced inversion prevailed just above the surface, the temperature increasing from  $-20.6^{\circ}$  C. to  $-5.9^{\circ}$  C.

at 370 meters, or  $-3.98^{\circ}$  C. per 100 meters. From the latter altitude to the maximum (2,386 meters above surface) the average lapse rate was only  $0.19^{\circ}$  C. per 100 meters. The record of the morning of the 5th showed a northwesterly surface wind backing with altitude to westerly at 2,000 meters and above. By this time the surface temperature had risen considerably as previously mentioned but, above what on the day before was the upper limit of the surface inversion (370 meters), the temperatures remained practically the same.

Relatively warm west and northwesterly air currents such as occurred on this occasion are characteristic of this region and are associated with low-pressure areas. The trajectory of this air, instead of being from the cold Arctic regions is evidently from the warm Japanese current of the Pacific."

## METEOROLOGICAL SUMMARY FOR SOUTHERN SOUTH AMERICA, DECEMBER, 1927

By J. BUSTOS NAVARRETE

[Observatorio del Salto, Santiago, Chile]

In December, 1927, there was very little activity in the atmospheric circulation. Frequent depressions of stationary character situated off the coast of central Chile brought much cloudiness and morning fog.

Only one depression of true cyclonic type was observed; this storm, which crossed the region of Magallanes on the 1st, caused strong winds, rain and foul weather generally over a large part of the southern area.

The anticyclones which formed over the islands of Juan Fernandez and Chiloe were, however, more numerous; the most important of these appeared on the charts for the following periods: 6th-7th, 8th-9th, 14th-15th, 20th-21st, 25th, and 28th-31st.

Precipitation was relative light in southern Chile and was generally limited to the region between Arauco and Magallanes. At Valdivia the total fall for the month was only 1.81 inches (normal, 4.41 inches).

While along the central coast there was much cloudiness, frequent morning fog and rain, in the interior the weather was uniformly fine. Throughout the first two weeks temperatures were moderate, and a definite change to warmer, with maxima  $86^{\circ}$  to  $90^{\circ}$  F., did not come until after the 25th.—*Transl. by W. W. R.*

## METEOROLOGICAL SUMMARY FOR BRAZIL, DECEMBER 1927

By FRANCISCO DE SOUZA, Acting Director  
[Directoria de Meteorologia, Rio de Janeiro]

The circulation in the lower strata of the atmosphere was abnormally intense; seven anticyclones swept over the Brazilian territory and in addition the depressions over the continent and high latitudes showed the usual activity. The active secondary circulation caused moderate storms on the southern coast.

In all of Brazil rainfall was generally light, especially in the higher latitudes, where the monthly total averaged 2.25 inches below normal.

Over the greater part of central and southern Brazil coffee, cotton, sugar cane, cereals, and vegetables suffered from lack of sufficient rain.

Fine weather prevailed in Rio de Janeiro; the duration of sunshine was 66.5 hours in excess of the normal for the month and the total precipitation showed a deficiency of 3 inches. The maximum temperature was  $96^{\circ}$  F. There were two storms; during the heavier one on the 15th the wind reached a velocity of 42 miles per hour from the south-southwest.—*Transl. by W. W. R.*

## NOTES AND ABSTRACTS

### A PROTOTYPE OF THE PUBLICATION "WORLD WEATHER RECORDS"<sup>1</sup>

The editor, in common with many others, welcomed the appearance of the volume here considered, but the welcome was somewhat dimmed by the discovery that the record for practically all of the meteorological stations comprising the great network maintained by Russia during the period antedating the World War began with the year 1881, whereas the observations began 10 to 12 years earlier. The omission of the early records seems not to have been due to the committee that collected the original data.

While in the Weather Bureau library a short time since, the attention of the editor was called to the second volume of the 1878 Yearbook of the Royal Meteorological Institute of The Netherlands, published in 1886 and prepared by a no less competent person than the late H. Wild, who for many years was director of the

Central Physical Observatory at St. Petersburg (now Leningrad). This publication contains the monthly mean pressures and temperatures for practically all stations on the globe, wherever situated, that were in operation in the late seventies. The record begins with January, 1871, and concludes with December, 1882, thus bridging the gap that exists in the publication, "World Weather Records," above mentioned. The monthly means of pressure, however, do not form a homogeneous series with those given in the last named publication.—A. J. H.

### RADIO BROADCASTS OF TWICE-DAILY WEATHER REPORTS

For several months past the U. S. Weather Bureau, with the cooperation of the Navy Department, has broadcast the morning weather reports from more than 200 station in the United States and Canada. Beginning on February 1, 1928, the complete reports both morning and evening will be broadcast at 8:15 a. m. and 8:15 p. m. eastern standard time in cooperation with the

<sup>1</sup>Smithsonian Misc. Coll., vol. 79, World Weather Records, collected by a committee, assembled and published by H. Helm Clayton, 1927.